

Claims:

- 1 1. A fiducial apparatus to be inserted into a target region, comprising:
2 a body portion made of a material that is visible using electromagnetic radiation; and
3 one or more anchoring devices connected to the body portion, each anchoring device
4 having an unanchored position and an anchored position, the unanchored position permitting the
5 body portion to move within the target region and the anchored position anchoring the fiducial
6 apparatus into the target region.
- 1 2. The apparatus of Claim 1, wherein the body portion further comprises a radio
2 opaque material so that the apparatus is viewable using electromagnetic radiation.
- 1 3. The apparatus of Claim 1, wherein the body portion comprises a memory metal
2 member that bends in response to an appropriate signal to anchor itself into the target region.
- 1 4. The apparatus of Claim 3, wherein the appropriate signal further comprises an
2 electric field.
- 1 5. The apparatus of Claim 3, wherein the appropriate signal further comprises a
2 predetermined temperature.
- 1 6. The apparatus of Claim 4, wherein the memory metal further comprises nitinol.
- 1 7. The apparatus of Claim 1, wherein each anchoring device further comprises an
2 anchor member and an elastic member connected to the anchor member that urges the anchor
3 member into the anchored position.
- 1 8. The apparatus of Claim 7, wherein the anchor member comprises a spike that
2 embeds itself into the target region.

1 9. The apparatus of Claim 8, wherein the spike further comprises a pyramidal shaped
2 member.

1 10. The apparatus of Claim 7, wherein the anchor member is an elongated rectangular
2 shaped member that embeds into the target region.

1 11. The apparatus of Claim 1, wherein the target region comprises a target region
2 within a human body.

1 12. The apparatus of Claim 11, wherein the target region further comprises a tumor in
2 the body of the patient.

1 13. The apparatus of Claim 1, wherein the body portion further comprises a material
2 that is viewable using a ultrasound image.

1 14. A method for anchoring a fiducial in a target region, comprising:
2
3 inserting the fiducial into the target region, the fiducial having an anchoring device that
4 anchors the fiducial into the target region, the anchoring device being held closed while being
5 inserted into the target region; and

6 anchoring the fiducial into the target region after the fiducial is inserted into the target
region, the anchoring device opening as the fiducial has been inserted into the target region.

1 15. The method of Claim 14, wherein the insertion further comprises injecting the
2 fiducial into the target region using a needle.

1 16. The method of Claim 14, wherein the anchoring further comprises moving one or
2 more anchor devices into an anchored position in order to embed the one or more anchor devices
3 into the target region.

1 17. A fiducial apparatus, comprising:
2
3 a body portion; and

means for anchoring the body portion into the target region so that the fiducial apparatus cannot move, each anchoring device having an unanchored position and an anchored position, the unanchored position permitting the body portion to move within the target region and the anchored position anchoring the fiducial apparatus into the target region.

18. The apparatus of Claim 17, wherein the body portion further comprises a radio opaque material so that the apparatus is viewable using electromagnetic radiation.

19. The apparatus of Claim 17, wherein the body portion comprises a memory metal member that bends in response to an appropriate signal to anchor itself into the target region.

20. The apparatus of Claim 19, wherein the appropriate signal further comprises an electric field.

21. The apparatus of Claim 19, wherein the appropriate signal further comprises a predetermined temperature.

22. The apparatus of Claim 20, wherein the memory metal further comprises nitinol.

23. The apparatus of Claim 17, wherein each anchoring device further comprises an anchor member and an elastic member connected to the anchor member that urges the anchor member into the anchored position.

24. The apparatus of Claim 23, wherein the anchor member comprises a spike that embeds itself into the target region.

25. The apparatus of Claim 24, wherein the spike further comprises a pyramidal shaped member.

26. The apparatus of Claim 23, wherein the anchor member is an elongated rectangular shaped member that embeds into the target region.

27. The apparatus of Claim 17, wherein the target region comprises a target region within a human body.

1 28. The apparatus of Claim 27, wherein the target region further comprises a tumor in
2 the body of the patient.

1 29. The apparatus of Claim 17, wherein the body portion further comprises a material
2 that is viewable using a ultrasound image.

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